

IN THE CLAIMS

The status of each claim of the present application is listed below.

Claims 1-54: Cancelled.

55. (New) A chemical mechanical polishing method for polishing working films, comprising:

mixing an aqueous dispersion comprising an abrasive, an organic compound and water;

supplying said aqueous dispersion to a surface of a polishing pad; and

chemical mechanical polishing a polishing surface of a working film composed of copper film or alloy film of copper with at least one other metal in the presence of said aqueous dispersion,

wherein

said organic compound is at least one compound selected from the group consisting of (1) biphenol, (2) bipyridyl, (3) hypoxanthine, (4) adenine, (5) a heterocyclic compound with a heteropentacycle, with no benzene ring forming the skeleton, and with a functional group, (6) a heterocyclic compound with a heteropentacycle, with a benzene ring forming the skeleton and with a functional group containing no sulfur atoms, (7) a heterocyclic compound with a heterohexacycle bearing two or more hetero atoms and with either or both a functional group and/or a benzene ring forming the skeleton,

said heterocyclic compound with a heteropentacycle, with no benzene ring forming the skeleton, and with a functional group is at least one selected from the group consisting of 2-amino-1,3,4-thiadiazole, 1H-tetrazole-1-acetic acid, 5-alkyl-1,3,4-thiadiazole-2-thiol, 4-

amino-1,2,4-triazole, 5-amino-1H-tetrazole, 2-mercaptothiazoline and 4-amino-3-hydrazino-5-mercapto-1,2,4-triazole,

said heterocyclic compound with a heteropentacycle, with a benzene ring forming the skeleton and with a functional group containing no sulfur atoms is either or both 2-aminobenzothiazole and/or 2-amino-6-alkylbenzothiazole,

said heterocyclic compound with a heterohexacycle bearing two or more hetero atom and with either or both a functional group and/or a benzene ring forming the skeleton is at least one from the group consisting of 3-amino-5, 6-dialkyl-1,2,4-triazine, 2,3-dicyano-5-alkylpyrazine, 2,4-diamino-6-diallylamino-1,3,5-triazine and phthalazine, and

said chemical mechanical polishing of said copper films is carried out at polishing rate in the range between 1220 and 3780 and Å/min.

56. (New) The chemical mechanical polishing method for polishing working films according to Claim 55, wherein said aqueous dispersion further comprises an oxidizing agent, and said oxidizing agent is hydrogen peroxide or ammonium persulfate.

57. (New) The chemical mechanical polishing method for polishing working films according to Claim 56, wherein the content of said oxidizing is 0.05-0.5 weight part based on 100 weight parts of the aqueous dispersion.

58. (New) The chemical mechanical polishing method for polishing working films according to Claim 57, wherein said aqueous dispersion further comprises a salt of an organic acid, and said salt of an organic acid is ammonium malonate or potassium malonate.

59. (New) The chemical mechanical polishing method for polishing working films according to Claim 58, wherein the content of said salt of an organic acid is 0.5-1 weight part based on 100 weight parts of said aqueous dispersion.

60. (New) The chemical mechanical polishing method for polishing working films according to Claim 55, wherein said aqueous dispersion further comprises a salt of an organic acid, and said salt of an organic acid is ammonium malonate or potassium malonate.

61. (New) The chemical mechanical polishing method for polishing working films according to Claim 60, wherein the content of said salt of an organic acid is 0.5-1 weight part based on 100 weight parts of said aqueous dispersion.

62. (New) The chemical mechanical polishing method for polishing working films according to Claim 55, wherein said working film is composed of said copper film.

63. (New) The chemical mechanical polishing method for polishing working films according to Claim 55, wherein said working film is composed of said alloy film copper film of copper and at least one other metal.

64. (New) The chemical mechanical polishing method for polishing working films according to Claim 55, wherein said alloy film contains at least 95wt% copper.

65. (New) The chemical mechanical polishing method for polishing working films according to Claim 55, wherein said other metal is silicon or aluminum.

66. (New) A chemical mechanical polishing method for polishing working films, comprising:

mixing an aqueous dispersion comprising an abrasive, an organic compound, water, and an oxidizing agent;

supplying said aqueous dispersion to a surface of a polishing pad; and

chemical mechanical polishing a polishing surface of said working films in the presence of said aqueous dispersion,

wherein

said organic compound is at least one selected from the group consisting of (1) biphenol, (2) bipyridyl, (3) hypoxanthine, (4) adenine, (5) a heterocyclic compound with a heteropentacycle, with no benzene ring forming the skeleton, and with a functional group, (6) a heterocyclic compound with a heteropentacycle, with a benzene ring forming the skeleton and with a functional group containing no sulfur atoms, (7) a heterocyclic compound with a heterohexacycle bearing two or more hetero atoms and with either or both a functional group and/or a benzene ring forming the skeleton,

said heterocyclic compound with a heteropentacycle, with no benzene ring forming the skeleton, and with a functional group is at least one selected from the group consisting of 2-amino-1,3,4-thiadiazole, 1H-tetrazole-1-acetic acid, 5-alkyl-1,3,4-thiadiazole-2-thiol, 4-amino-1,2,4-triazole, 5-amino-1H-tetrazole, 2-mercaptothiazoline and 4-amino-3-hydrazino-5-mercapto-1,2,4-triazole,

said heterocyclic compound with a heteropentacycle, with a benzene ring forming the skeleton and with a functional group containing no sulfur atoms is either or both 2-aminobenzothiazole and/or 2-amino-6-alkylbenzothiazole,

said heterocyclic compound with a heterohexacycle bearing two or more hetero atom and with either or both a functional group and/or a benzene ring forming the skeleton is at

least one from the group consisting of 3-amino-5, 6-dialkyl-1,2,4-triazine, 2,3-dicyano-5-alkylpyrazine, 2,4-diamino-6-diallylamino-1,3,5-triazine and phthalazine, and

said oxidizing agent is hydrogen peroxide or ammonium persulfate and the content of said oxidizing agent is 0.05-0.5 weight part based on 100 weight parts of the aqueous dispersion.

67. (New) The chemical mechanical polishing method for polishing working films according to Claim 66, wherein said aqueous dispersion further comprises a salt of an organic acid, and said salt of an organic acid is ammonium malonate or potassium malonate.

68. (New) The chemical mechanical polishing method for polishing working films according to Claim 67, wherein the content of said salt of an organic acid is 0.5-1 weight part based on 100 weight parts of the aqueous dispersion.

69. (New) The chemical mechanical polishing method for polishing working films according to Claim 67, wherein the working film composed of copper film or alloy film of copper with at least one other metal.

70. (New) The chemical mechanical polishing method for polishing working films according to Claim 66, wherein said working film is composed of said copper film.

71. (New) The chemical mechanical polishing method for polishing working films according to Claim 66, wherein said working film is composed of said alloy film copper film of copper and at least one other metal.

72. (New) The chemical mechanical polishing method for polishing working films according to Claim 66, wherein said alloy film contains at least 95wt% copper.

73. (New) The chemical mechanical polishing method for polishing working films according to Claim 66, wherein said other metal is silicon or aluminum.

74. (New) A chemical mechanical polishing method for polishing working films, comprising:

mixing an aqueous dispersion comprising an abrasive, an organic compound and water, wherein said dispersion does not comprise a surfactant, and wherein said aqueous dispersion has pH of 8 to 8.5;

supplying said aqueous dispersion to a surface of a polishing pad; and

chemical mechanical polishing a polishing surface of a working film composed of copper film or alloy film of copper with at least one other metal in the presence of said aqueous dispersion,

wherein

said organic compound is at least one selected from the group consisting of (1) biphenol, (2) bipyridyl, (3) hypoxanthine, (4) adenine, (5) a heterocyclic compound with a heteropentacycle, with no benzene ring forming the skeleton, and with a functional group, (6) a heterocyclic compound with a heteropentacycle, with a benzene ring forming the skeleton and with a functional group containing no sulfur atoms, (7) a heterocyclic compound with a heterohexacycle bearing two or more hetero atoms and with either or both a functional group and/or a benzene ring forming the skeleton,

said heterocyclic compound with a heteropentacycle, with no benzene ring forming the skeleton, and with a functional group is at least one selected from the group consisting of

2-amino-1,3,4-thiadiazole, 1H-tetrazole-1-acetic acid, 5-alkyl-1,3,4-thiadiazole-2-thiol, 4-amino-1,2,4-triazole, 5-amino-1H-tetrazole, 2-mercaptothiazoline and 4-amino-3-hydrazino-5-mercapto-1,2,4-triazole,

said heterocyclic compound with a heteropentacycle, with a benzene ring forming the skeleton and with a functional group containing no sulfur atoms is either or both 2-aminobenzothiazole and/or 2-amino-6-alkylbenzothiazole,

said heterocyclic compound with a heterohexacycle bearing two or more hetero atom and with either or both a functional group and/or a benzene ring forming the skeleton is at least one from the group consisting of 3-amino-5, 6-dialkyl-1,2,4-triazine, 2,3-dicyano-5-alkylpyrazine, 2,4-diamino-6-diallylamino-1,3,5-triazine and phthalazine, and

said chemical mechanical polishing of said copper films is carried out at polishing rate in the range between 1220 and 3780 and Å/min.

75. (New) The chemical mechanical polishing method for polishing working films according to Claim 74, wherein said aqueous dispersion further comprises an oxidizing agent, and said oxidizing agent is hydrogen peroxide or ammonium persulfate.

76. (New) The chemical mechanical polishing method for polishing working films according to Claim 75, wherein the content of said oxidizing is 0.05-0.5 weight part based on 100 parts of aqueous dispersion.

77. (New) The chemical mechanical polishing method for polishing working films according to Claim 74, wherein said aqueous dispersion further comprises a salt of an organic acid, and said salt of an organic acid is ammonium malonate or potassium malonate.

78. (New) The chemical mechanical polishing method for polishing working films according to Claim 77, wherein the content of said salt of organic acid is 0.5-1 weight part based on 100 weight parts of the aqueous dispersion.

79. (New) The chemical mechanical polishing method for polishing working films according to Claim 74, wherein said working film is composed of said copper film.

80. (New) The chemical mechanical polishing method for polishing working films according to Claim 74, wherein said working film is composed of said alloy film copper film of copper and at least one other metal.

81. (New) The chemical mechanical polishing method for polishing working films according to Claim 74, wherein said alloy film contains at least 95wt% copper.

82. (New) The chemical mechanical polishing method for polishing working films according to Claim 74, wherein said other metal is silicon or aluminum.



SUPPORT FOR THE AMENDMENT

Newly-added Claims 55-82 are supported by the specification at pages 3-40 and original Claims 1-30. Accordingly, no new matter is believed to have been added to the present application by the amendment submitted above.